



NATIONAL INSTITUTE OF TECHNOLOGY, PATNA
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
MID-SEMESTER EXAMINATION – MARCH 2022

B. Tech. 6th Semester CSE

Date: 09th March 2022(FN)

Time: 02 Hrs.

CS6401 – Computer Graphics

Max. Marks: 30

Instructions: It will be same as per the Exam section of NIT Patna. All the questions are compulsory.

Ques. no.	Questions	Marks	CO	BL
Q. 1.	Define the following terms in brief with suitable diagram (if possible): (i) Computer Graphics (ii) Virtual reality triangle (iii) Frame (iv) Frame Buffer (v) Scan-line (vi) Scan-conversion (vii) Resolution and Aspect ratio (viii) Anti-Aliasing (ix) Mixed reality system (x) Interactive and passive graphics.	[10*1=10]	CO-1	I
Q. 2.	Explain the working components of Cathode Ray Tube (CRT) with suitable diagrams. Differentiate between normal CRT and colored CRT with suitable diagram.	[04]	CO-1	II, III, V
Q. 3.	Explain the importance of the video controller in an interactive raster-graphics systems with suitable diagram. Differentiate between raster-scan and random-scan display system with suitable diagram.	[04]	CO-1	II, III, V
Q. 4.	Define the functionality of each steps of the graphics viewing pipeline with suitable diagram. Explain the thumb rules for representing Three-Dimensional (3D) coordinate systems with the help of diagram.	[04]	CO-1, CO-3, CO-4	I, III
Q. 5.	Differentiate between Direct Differential Analyzer (DDA) and Bresenham's algorithms. Consider the line from (0, 0) to (-6, -6). Use the simple DDA algorithm and find intermediate points to rasterize this line segment, also draw the rough graph on your sheet.	[04]	CO-1	IV, V
Q. 6.	Explain in steps how an ellipse rasterize with the mid-point ellipse drawing method could be properly filled and create a colored ellipse by using a boundary-fill algorithm. Differentiate between boundary-fill and flood-fill seed algorithms.	[04]	CO-1	III, VI

*****All the Best*****